

Application No.: 10/505,447

Reply to Advisory Action of: January 11, 2008

BASIS FOR THE AMENDMENT

Claim 6 has been canceled.

Claim 5 has been amended as supported by the specification and claims as originally filed.

No new matter is believed to have been added by entry of this amendment. Entry and favorable reconsideration are respectfully requested.

Upon entry of this amendment Claims 5, 7-17 will now be active in this application.

REMARKS

Applicants wish to thank Examiner Kruer for the discussions on February 29 and March 24, 2008. The data in the specification were discussed in detail. In addition, it was discussed to amend the surface layer composition in order to distinguish over the prior art. Thus, Claim 5 has been so amended. "Consisting essentially of" excludes the use of elastomer in the surface layer.

Applicants respectfully request reconsideration of the application, as amended, in view of the following remarks.

A formed product is claimed in Claim 9 and an embossed carrier tape is claimed in Claim 12.

Claim 5 relates to a multilayer sheet, which comprises:

a substrate layer of an elastomeric styrene polymer comprising from 1 to 20 parts by mass of a dispersed phase of an elastomer comprising from 30 to 50 mass% of styrene monomer units and from 70 to 50 mass% of butadiene monomer units, and from 99 to 80 parts by mass of a continuous phase of a polymer comprising from 35 to 75 mass% of styrene monomer units and from 65 to 25 mass% of (meth)acrylate monomer units, and

a surface layer consisting essentially of a styrene polymer comprising from 35 to 75 mass% of styrene monomer units and from 65 to 25 mass% of (meth)acrylate monomer units, **formed on each side of the substrate layer;** and

wherein the total thickness of said multilayer sheet is from 50 to 2,000 μm , and the thickness of the surface layer is from 3 to 20% of the total thickness.

Claim 7 relates to a multilayer sheet which comprises:

a **substrate layer**

comprising a thermoplastic resin (C); and

a surface layer formed on at least one side of the substrate layer,

said surface layer comprising

an elastomeric styrene polymer,

component (B1),

component (B2) and

component (B3),

in a mass ratio of elastomeric styrene polymer to the total amount of components (B1), (B2) and (B3) of from 98/2 to 80/20,

wherein said elastomeric styrene polymer comprises

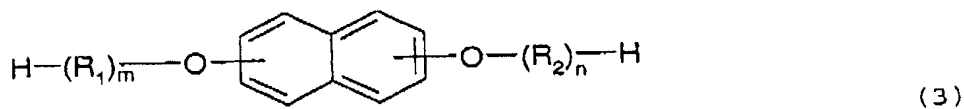
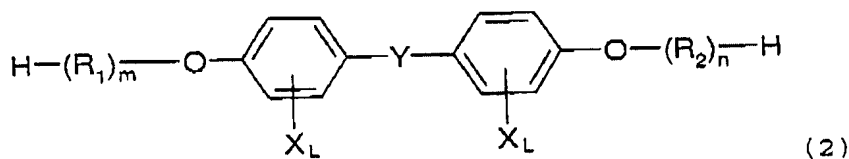
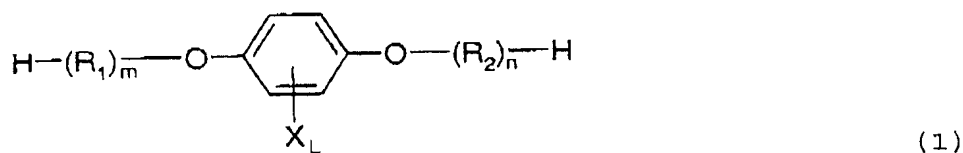
(I) from 40 to 95 parts by mass of a continuous phase of a copolymer comprising from 20 to 80 mass% of styrene monomer units, from 80 to 20 mass% of (meth) acrylate monomer units and from 0 to 10 mass% of units of other vinyl monomers copolymerizable with such monomers, and

(II) from 60 to 5 parts by mass of a dispersed phase of a graft copolymer having from 20 to 90 parts by mass of graft branches of a copolymer comprising from 20 to 80 mass% of styrene monomer units, from 80 to 20 mass% of (meth) acrylate monomer units and from 0 to 10 mass% of units of other vinyl monomers copolymerizable with such monomers, grafted to from 10 to 80 parts by mass of an elastomer,

wherein the volume average particle size of the dispersed phase is from 0.1 to 0.6 μm , and the difference in the refractive index between the continuous phase and the dispersed phase is not more than 0.05;

wherein component (B1) is an aminocarboxylic acid having at least 6 carbon atoms, a lactam, or a salt of a diamine with a carboxylic acid, having at best 6 carbon atoms;

wherein component (B2) is at least one dial compound selected from the following chemical formulae (1) to (3) :



wherein R_1 is an ethylene oxide group, R_2 is an ethylene oxide group or a propylene oxide group, Y is a covalent bond, a C_{1-6} alkylene group, a C_{1-6} alkylidene group, a C_{7-17} cycloalkylidene group, a C_{7-17} arylalkylidene group, O, SO, SO_2 , CO, S, CF_2 , $\text{C}(\text{CF}_3)_2$ or NH, L in X_L is an integer of from 1 to 4, and each of m and n is an integer of at least 16;

wherein component (B3) is a polyether ester amide having a C_{4-20} dicarboxylic acid copolymerized; and

wherein the total thickness of said multilayer sheet is from 50 to 2,000 μm , and the thickness of the surface layer is from 3 to 20% of the total thickness.

In contrast, Auclair (US 5,932,655), Ueyama (US 5,284,884) and Ueda (US 5,886,098) fail to disclose or suggest a sheet as claimed in Claim 5 or Claim 7 having **a substrate layer, and a surface layer, formed on each side of the substrate layer;** and **wherein the total thickness of said multilayer sheet is from 50 to 2,000 μm , and the thickness of the surface layer is from 3 to 20% of the total thickness.**

Further, Auclair (US 5,932,655), Ueyama (US 5,284,884) and Ueda (US 5,886,098) fail to disclose or suggest a sheet as claimed in Claim 5 wherein the **surface layer consists essentially of** a styrene polymer comprising from 35 to 75 mass% of styrene monomer units and from 65 to 25 mass% of (meth)acrylate monomer units, **formed on each side of the substrate layer.** “Consisting essentially of” excludes the use of elastomer in the surface layer.

It is an object of the present invention is to obtain a multilayer sheet comprising a substrate layer and a surface layer, which are made of different MBS resin compositions respectively, from which a transparent sheet which is excellent in transparency after vacuum forming can be obtained.

Claim 5 defines the structure of MBS of the substrate layer and the surface layer. Namely, the present invention includes multilayer sheets each comprising a substrate layer and surface layers (both surfaces) having a different structure (Claim 5) as specifically explained in Examples and Comparative Examples.

Further, as described in “INDUSTRIAL APPLICABILITY”, the main effect obtained by the above multilayer sheet is “to obtain a transparent sheet which is free from deterioration in the appearance (transparency) even when subjected to vacuum forming and which is excellent in physical strength and excellent in economical efficiency and recycling properties”. See page 41 of the specification.

The above effect can be obtained for the first time by the specific resin compositions of the surface layers and the substrate layer of the present invention as claimed in Claim 5.

This is not disclosed or suggested by Auclair, Ueyama and Ueda, alone or in combination.

For Claim 7, the Examiner wanted to see data for the claimed invention where the surface layer is on one side or both sides of the substrate and where the surface layer has components B1, B2 and B3. In addition, he wanted to see comparative data where the surface layer does not have components B1, B2 and B3. In this context, the Examiner’s attention is drawn to Table 3 of the specification, reproduced below:

Table 3

	Impact strength (N)	Haze (%)	Total light transmittance (%)	Forming properties			Surface resistivity (Ω/\square)
				170°C	190°C	210°C	
Example 1	0.71	3.5	85	Fair	Good	Good	1×10^{10}
Example 2	0.88	3.1	85	Good	Excellent	Excellent	4×10^{10}
Example 3	0.91	3.1	85	Good	Good	Excellent	4×10^{10}
Comparative Example 1	0.82	3.1	85	Fair	Fair	Good	$>10^{14}$
Comparative Example 2	0.11	2.1	84	Fair	Fair	Fair	3×10^{10}

The sheets in Examples 1 to 3 contain component (B) obtained from components B1, B2 and B3. The sheet of Example 1 is a single layer (in other words a surface layer only), and the sheets of Examples 2 and 3 are 3-layer sheets. The sheets of Comparative Examples 1 and 2 are single layer sheets, and the proportion of the component (B) in Comparative Example 1 is 1%, i.e. outside the range as defined in present Claim 7. In the results indicated in Table 3, there is no substantial difference in the haze value between Examples 1 and 3 and Comparative Example 1. On the other hand, the surface resistivity is changed from a 10^{14} level to a 10^{10} level by the addition of component (B).

This is not disclosed or suggested by Auclair, Ueyama and Ueda, alone or in combination.

Therefore, the rejection of the claims under 35 U.S.C. § 103(a) over Auclair (US 5,932,655) in view of Ueyama (US 5,284,884) and Ueda (US 5,886,098) is believed to be unsustainable as the present invention is neither anticipated nor obvious and withdrawal of this rejection is respectfully requested.

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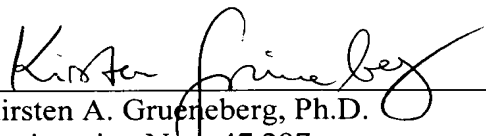
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This application presents allowable subject matter, and the Examiner is kindly requested to pass it to issue. Should the Examiner have any questions regarding the claims or otherwise wish to discuss this case, he is kindly invited to contact Applicants' below-signed representative, who would be happy to provide any assistance deemed necessary in speeding this application to allowance.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon

Customer Number
22850


Kirsten A. Grueneberg, Ph.D.
Registration No. 47,297